

WHAT IS CLAIMED IS:

1. An exposure apparatus comprising:
 - a reticle stage which holds a reticle;
 - a reticle surface plate which supports said
- 5 reticle stage;
 - a projection optical system which projects a pattern of the reticle onto a substrate;
 - a shield which surrounds a space between said reticle stage and said reticle surface plate through
- 10 which exposure light passes, and shields the space from outside; and
 - a gas supply which supplies inert gas into the space shielded by said shield.
2. The apparatus according to claim 1, wherein said
- 15 shield is supported by said reticle stage.
3. The apparatus according to claim 1, wherein said shield is arranged to allow movement of said reticle stage on said reticle surface plate.
4. The apparatus according to claim 1, wherein said
- 20 shield is formed from a plate member.
5. The apparatus according to claim 1, wherein said shield includes an air curtain.
6. The apparatus according to claim 1, wherein said
- shield includes a hydrostatic bearing disposed between
- 25 said reticle stage and said reticle surface plate.
7. The apparatus according to claim 6, wherein the inert gas supplied to the hydrostatic bearing is also

supplied to the space shielded by said shield, thereby purging the space.

8. The apparatus according to claim 1, further comprising a sheet glass set on said reticle surface plate so as to separate, from the space shielded by said shield, a space inside an opening which is formed in said reticle surface plate to transmit exposure light.

9. The apparatus according to claim 8, further comprising a second gas supply which supplies inert gas to the space separated by said sheet glass.

10. The apparatus according to claim 1, further comprising a gas recovery which recovers gas from the space shielded by said shield.

11. The apparatus according to claim 1, further comprising:

a sensor arranged to measure a pressure in the space shielded by said shield; and

20 a controller arranged to control said gas supply on the basis of the pressure measured by said sensor.

12. The apparatus according to claim 1, further comprising a cleaning gas supply which supplies cleaning gas into the space shielded by said shield.

13. The apparatus according to claim 1, wherein the 25 cleaning gas includes at least one of oxygen and ozone.

14. The apparatus according to claim 1, wherein the apparatus further comprises:

an illumination optical system; and
an enclosure which surrounds a space between said
illumination optical system and said reticle stage
through which exposure light passes,

5 wherein said enclosure is arranged such that a
gap is provided between a lower end thereof and said
reticle stage, and

10 said reticle stage has, around the reticle, a top
plate with a surface flush with an upper surface of the
10 reticle.

15. The apparatus according to claim 1, wherein
the apparatus further comprises:
a substrate stage which holds the substrate; and
an enclosure which surrounds a space between said
15 projection optical system and said substrate stage
through which exposure light passes,

20 wherein said enclosure is arranged such that a
gap is provided between a lower end thereof and said
substrate stage, and

20 said substrate stage has, around the substrate, a
top plate with a surface flush with an upper surface of
the substrate.

16. The apparatus according to claim 1, wherein said
shield is so arranged as to prevent an opening of said
25 reticle surface plate from deviating from a region
defined by said shield.

17. An exposure apparatus comprising:

- a reticle stage which holds a reticle;
- a reticle surface plate which supports said reticle stage, said reticle surface plate having an opening for transmitting exposure light;
- 5 a projection optical system which projects a pattern of the reticle onto a substrate; and
- a sheet glass set on said reticle surface plate so as to separate a space inside the opening of said reticle surface plate from a space above said reticle
- 10 surface plate.
18. An exposure apparatus comprising:
- an optical system;
- a stage which moves with a flat object during exposure; and
- 15 an enclosure which surrounds a space between said optical system and said stage through which exposure light passes,
- wherein said enclosure is arranged such that a gap is provided between a lower end thereof and said stage, and said stage has, around the flat object, a top plate with a surface flush with an upper surface of the flat object.
- 20 19. The apparatus according to claim 18, wherein said optical system includes an illumination optical system, and said stage includes a reticle stage.
- 25 20. The apparatus according to claim 18, wherein said optical system includes a projection optical system,

and said stage includes a substrate stage.

21. A device manufacturing method comprising the steps of:

installing, in a semiconductor manufacturing factory, manufacturing apparatuses for various processes including the exposure apparatus defined in claim 1; and

manufacturing a semiconductor device by a plurality of processes using the manufacturing apparatuses.

22. The method according to claim 21, further comprising the steps of:

connecting the manufacturing apparatuses via a local area network; and

15 communicating information about at least one of the manufacturing apparatuses between the local area network and an external network outside the semiconductor manufacturing factory.

23. The method according to claim 22, further comprising the step of accessing a database provided by a vendor or user of the exposure apparatus via the external network, thereby obtaining maintenance information of the exposure apparatus by data communication.

25 24. The method according to claim 23, further comprising the step of performing data communication between the semiconductor manufacturing factory and

another semiconductor manufacturing factory via the external network, thereby performing production management.

25. A semiconductor manufacturing factory comprising:

- 5 manufacturing apparatuses for various processes including the exposure apparatus defined in claim 1;
- a local area network for connecting the manufacturing apparatuses; and
- a gateway for allowing access to an external
- 10 network outside the factory from the local area network,
- wherein information about at least one of the manufacturing apparatuses is communicated.

26. A maintenance method for the exposure apparatus defined in claim 1 that is installed in a semiconductor manufacturing factory, comprising the steps of:

- making a vendor or user of the exposure apparatus provide a maintenance database connected to an external network outside the semiconductor manufacturing factory;
- 20 allowing access to the maintenance database from the semiconductor manufacturing factory via the external network; and
- transmitting maintenance information accumulated in the maintenance database to the semiconductor
- 25 manufacturing factory via the external network.

27. The apparatus according to claim 1, wherein the apparatus further comprises:

- a display;
 - a network interface; and
 - a computer for executing network software, and
 - said display, said network interface, and said
- 5 computer enable communicating maintenance information of the exposure apparatus via a computer network.
28. The apparatus according to claim 27, wherein the network software provides on said display said user interface for accessing a maintenance database provided
- 10 by a vendor or user of the exposure apparatus and connected to the external network outside a factory in which the exposure apparatus is installed, and information is obtained from the database via the external network.